Potential Association Between Indoor Mold Growth and Pulmonary Hemorrhage in Infants

The Centers for Disease Control and Prevention (CDC) of the Public Health Service has recently asked for our help to publicize the apparent association between mold contamination of the indoor environment and a number of cases of infant pulmonary hemorrhage that CDC has investigated. During the last 4 years several infants have experienced pulmonary hemorrhage or bleeding from the lungs - some of them died. CDC investigators believe that an association may exist between infant pulmonary hemorrhage and the indoor mold *Stachybotrys atra.*

The Environmental Protection Agency and CDC believe it is important to recognize the symptoms of pulmonary hemorrhage and to avoid exposing infants to indoor molds. CDC would also like to continue the investigation and identify other possible cases. While we do not want to create undue alarm or misstate the possible relationship between infant pulmonary hemorrhage and *Stachybotrys atra*, public awareness of the symptoms and causes of pulmonary hemorrhage could save lives.

The following key points are adapted from the CDC brochure "Important Facts about Pulmonary Hemorrhage" and the January 17, 1997 issue of CDC's *Morbidity and Mortality Weekly Report.*

Please help us disseminate this information to the public health community, encourage people to report any case of pulmonary hemorrhage with an unknown cause in an infant (under 1 year of age) to the CDC, and let us know how your efforts progress.

Thanks for your help.

Symptoms of Pulmonary Hemorrhage

Pulmonary hemorrhage is bleeding in the lungs. Symptoms include coughing up blood and nosebleed. If you notice these symptoms in your infant, get medical attention immediately. It can be fatal in infants under 1 year of age.

Causes of Pulmonary Hemorrhage

While research is ongoing about this rare but deadly disease, CDC's investigation suggests that one of the causes of infant pulmonary hemorrhage may be toxins from the indoor mold in the infants' environment. These toxins may irritate the lining of the infants lungs and weaken developing blood vessels, eventually leading to pulmonary bleeding. In addition, CDC indicates that exposure to tobacco smoke in addition to this indoor mold may increase an infant's risk of pulmonary hemorrhage. Pulmonary hemorrhage has also been linked with allergy to cow's milk, pneumonia, heart/ lung/ spleen/ pancreas problems, and other infections/ allergies/ immunological diseases.

Stachybotrys atra

The mold suspected to be associated with pulmonary hemorrhage is *Stachybotrys atra*. Stachybotrys is black or green-black and has a slimy appearance. This mold grows primarily on materials such as wood and wood based products, paper, or other cellulose products which have become and remain wet. It is not typically found in dry or simply humid locations or on bread, shower tiles, plastic, vinyl, concrete, or ceramics.

Cleanup of Mold Growth

Fix all leaks and eliminate water sources associated with the mold growth. Clean hard surfaces with a solution of bleach and water (1½ cups of bleach per gallon of water); make sure to ventilate the area when using chlorine bleach (note: do not add detergents which contain ammonia to the solution of bleach and water - toxic fumes could result). Some experts suggest that persons performing the cleanup wear filter masks and gloves to avoid contact with the mold. Let the bleach and water mixture sit for 15 minutes and then dry the area thoroughly. Porous materials that are wet and cannot be thoroughly cleaned and dried should be discarded, as they can remain a source of mold growth.

To report a case of pulmonary hemorrhage with an unknown cause in an infant (under 1 year of age) or to obtain the publications marked with an asterisk below, please contact the Centers for Disease Control and Prevention at (770) 488-7320.

For Additional Information:

*Centers for Disease Control and Prevention. *Important Facts about: Pulmonary Hemorrhage.* Pamphlet September 1996.

*Centers for Disease Control and Prevention. *Update on Pulmonary Hemorrhage/ Hemosiderosis Among Infants - Cleveland, Ohio, 1993-1996.* Morbidity and Mortality Weekly Report, Vol. 46, No. 2, January 17, 1997. (Internet http://www.cdc.gov/cdc.htm)

*Centers for Disease Control and Prevention. *Acute Pulmonary Hemorrhage/ Hemosiderosis Among Infants - Cleveland, January 1993-November 1994.* Morbidity and Mortality Weekly Report, Vol. 43, No. 48, December 9, 1994. (Internet http://www.cdc.gov/cdc.htm)

Several fact sheets and other indoor air quality related publications including "Biological Pollutants in Your Home" and "Flood Cleanup: Avoiding Indoor Air Quality Problems" are available from:

Indoor Air Quality Information Clearinghouse
P.O. Box 37133
Washington, DC 20013-7133
(800)-438-4318 or (202)-484-1307

**Montana, E., Etzel, R., Allan, T., Horgan, T., and Dearborn, D. Environmental Risk Factors Associated with Pediatric Idiopathic Pulmonary Hemorrhage and Hemosiderosis in a Cleveland Community. Pediatrics, Vol. 99, No. 1, January 1997. (Internet http://www.pediatrics.org/cgi/content/full/99/1/e5)*

U.S. Environmental Protection Agency, Indoor Environments Division web site http://www.epa.gov/iaq/